

Serial No.: 09/189,543

Filed: November 10, 1998

**AMENDMENTS**

Please cancel claims 8-14 without prejudice.

C1  
Sub D1  
1. (Amended) An array composition comprising:

- a) a substrate with a surface comprising discrete sites at a density of at least 100 sites per 1 mm<sup>2</sup>; and
- b) a population of microspheres comprising at least a first and a second subpopulation, wherein [each] said first and said second subpopulations comprise[s]:
  - i) a first and second bioactive agent, respectively; and
  - ii) a[n] first and second identifier binding ligand, respectively [ that will bind a decoder binding ligand, such that the identification of the bioactive agent can be elucidated];

wherein said microspheres are randomly distributed on said surface.

## 2. (Amended) An array composition comprising:

- a) a substrate with a surface comprising discrete sites at a density of at least 100 sites per 1 mm<sup>2</sup>; and
- b) a population of microspheres comprising at least a first and a second subpopulation, wherein [each] said first and second subpopulations comprise[s] a first and second bioactive agent, respectively, and [does] do not comprise [an optical signature] a label, wherein said microspheres are randomly distributed on said surface.

3. (Amended) A composition according to claim 1 [or 2], 2 or 17, further comprising at least one decoder binding ligand.

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Sub 22  
4. (Amended) A composition according to claim 1 [or 2], 2, 17, 22 or 23, wherein said bioactive agents are nucleic acids.

5. (Amended) A composition according to claim 1 [or 2], 2, 17, 22 or 23, wherein said bioactive agents are proteins.

6. A method of making a composition comprising:

a) [forming] providing a surface comprising individual sites on a substrate at a density of at least 100 sites per 1 mm<sup>2</sup>;

b) randomly distributing microspheres on said surface such that said individual sites contain microspheres, wherein said microspheres comprise at least a first and a second subpopulation, [each] wherein said first and second subpopulations [comprising] comprise a first and a second bioactive agent, respectively, and do not comprise [an optical signature] a label.

7. A method of making a composition comprising:

Sub 23  
a) [forming] providing a surface comprising individual sites on a substrate at a density of at least 100 sites per 1 mm<sup>2</sup>;

b) randomly distributing microspheres on said surface such that said individual sites contain microspheres, wherein said microspheres comprise at least a first and a second subpopulation[s], wherein said first and second subpopulations [each comprising] comprise:

i) a first and second bioactive agent, respectively; and

ii) [an] a first and a second identifier binding ligand [that will bind at least one decoder binding ligand, such that the identification of the bioactive agent can be elucidated].

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C2 15. (Amended) The composition according to claim 1 [or claim 2] 2, 17, 22 or 23, wherein said discrete sites are wells.

16. (Amended) The method according to claim 6[, claim], 7, 24 or 25, [claim 8, claim 13 or claim 14,] wherein said discrete sites are wells.

Please add the following new claims:

C3 --17. An array composition comprising:

- a) a substrate with a surface comprising discrete sites, wherein said substrate is a fiber optic bundle; and
- b) a population of microspheres comprising at least a first and a second subpopulation, wherein each subpopulation comprises a bioactive agent and does not comprise a label, wherein said microspheres are randomly distributed on said surface.

18. A composition according to claim 1, 2, 22 or 23, wherein said substrate is selected from the group consisting of glass and plastic.

19. A composition according to claim 1, 2, 22 or 23, wherein said substrate is a fiber optic bundle.

20. A method according to claim 6, 7, 24 or 25, wherein said substrate is selected from the group consisting of glass or plastic.

21. A method according to claim 6, 7, 24 or 25 wherein said substrate is a fiber optic bundle.

22. An array composition comprising:

- a) a substrate with a surface comprising discrete sites; and

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b) a population of microspheres comprising at least a first and a second subpopulation, wherein said first and second subpopulations comprise:

- i) a first and a second bioactive agent, respectively;
- ii) a first and second identifier binding ligand, respectively; and
- iii) a first and a second decoder binding ligand, bound to said first and second identifier binding ligands, respectively;

wherein said microspheres are randomly distributed on said surface.

23. An array composition comprising:

a) a substrate with a surface comprising discrete sites; and

b) a population of microspheres comprising:

- i) at least a first and a second subpopulation, wherein said first and second subpopulations comprise a first and a second bioactive agent, respectively, and do not comprise a label; and
- ii) a first and a second decoder binding ligand bound to said first and second bioactive agent, respectively;

wherein said microspheres are randomly distributed on said surface.

24. A method of making a composition comprising:

- a) providing a surface comprising individual sites on a substrate;
  - b) randomly distributing microspheres on said surface such that said individual sites contain microspheres, wherein said microspheres comprise at least a first and a second subpopulation comprising a first and second bioactive agent, respectively; and
  - c) binding a first and second decoder binding ligand to said first and second bioactive agent, respectively;
- wherein said microspheres do not comprise a label.

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25. A method of making a composition comprising:

- Sub  
DS
- a) forming a surface comprising individual sites on a substrate;
  - b) randomly distributing microspheres on said surface such that said individual sites contain microspheres, wherein said microspheres comprise at least a first and a second subpopulations, wherein said first and second subpopulations comprise:
    - i) a first and second bioactive agent, respectively; and
    - ii) a first and second identifier binding ligand, respectively,
  - c) binding a first and second decoder binding ligand to said first and second identifier binding ligand.

26. A method according to claim 6 further comprising:

- C3  
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- c) binding a first and second decoder binding ligand to said first and second bioactive agent.

27. A method according to claim 7 further comprising:

- c) binding a first and second decoder binding ligand to said first and second identifier binding ligand.

28. A method according to claim 24, 25, 26 or 27, wherein at least said first decoder binding ligand comprises a label.

29. A composition according to claim 3, wherein said at least one decoder binding ligand comprises a label.

30. A composition according to claim 1, wherein said first bioactive agent is said first identifier binding ligand.